



Flow batteries st george

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You may be familiar with the lithium-ion battery, used in everything from cell phones and laptops to Tesla electric vehicles. Lithium-ion batteries changed the energy game as a way to harness and store immense power density, especially considering their relatively small unit mass compared to other energy storage systems.

Ask those excited about flow batteries, and they'll tell you they're the best thing to come along since sliced bread—at least when it comes to renewable energy storage. That's because flow batteries have many advantages over lithium-ion batteries currently in use (which we'll cover in detail later).

In the case of rechargeable lithium-ion batteries, all the components are still housed within the main battery unit. The power output varies, based on the size of the unit. To power larger devices, you need larger and/or multiple batteries.

Instead of increasing the size of the main unit or adding more units to increase the storage or output, all you need to do is increase the size of the tanks. Talk about a breakthrough in the world of renewable energy!

Lithium-ion batteries can be highly flammable. Most flow batteries are not. Vanadium is a rare metal that's used in some flow batteries, and it's not known for its flammability, particularly when it's dissolved in the flow battery's fluid. Other flow batteries don't use rare metals at all. The main ingredients in the fluid are water, salt, and iron.

Even when flow batteries aren't used for extended periods, they're not prone to self-discharging. That's because the electrolyte carrying the charge is held in its own separate tank.

In other types of batteries, the electrodes undergo chemical and physical changes that ultimately degrade the entire battery. Flow batteries feature a semi-permanent electrolyte and barely any electrode degradation. This allows for tons of discharging and recharging before any type of replacement is needed.

With all the advantages for storing and releasing renewable energy, you may be wondering why flow batteries aren't being used all over the place. That's because there are still a few disadvantages that beg to be improved.

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